REFEX™ sensors ltd
"the First to Last"

EXNER Process Equipment

REFEX™ pH sensors

and systems for Oil & Gas Refineries, Petrochemical/Chemical Processes and ETP

2 year warranty, accurate, low maintenance and unbeatable cost of ownership

Contents

Highly Contaminated Porous pH Sensors

Traditional pH and ORP sensors with porous/open reference junctions that are used in processes containing aggressive and toxic chemicals often fail because of reference electrode poisoning. Chemicals from within the process diffuse through the built-in porous/open junction(s) necessary for this type of sensor to operate and poison the Ag/AgCl electrode within the reference half cell. Poisoning of the reference electrode leads to severe measurement performance issues and premature demise of the sensor. Apart from the high expense that comes about from the frequent replacement of these failing sensors, there is also the cost of safely [and legally] handling and disposing of what can be highly contaminated sensors. Improper disposal of contaminated sensors can have a significant impact on the environment and expose companies to additional cost risk through litigation and penalty.

The obvious solution to this difficult environmental problem is the use of Refex Non-Porous pH and ORP sensors. All Refex sensors use a reference cell that has no porous junction, so ingress of hazardous materials such as chemicals, biologics and radioactive materials is prevented. Instead of a porous junction, Refex sensors use a patented ionically conductive interface barrier to connect the process to the reference electrode. This barrier prevents all contact between the process liquid and the reference half cell electrolyte. There is no risk of a Refex sensor becoming internally contaminated by any hazardous material.

Refex pH and ORP sensors can be safely used in challenging applications such as those with toxic chemicals, biological agents or radioactive materials without the added concern and expense of safe disposal once depleted. In addition (and unlike many traditional sensors), they will provide reliable, drift free measurement and exceptionally long life.

Typical contaminants include those with:

Cadmium	Peroxide	Active Biologicals
Cyanide	Ammonia	Strong Acids
Chlorine	Hydrogen Sulfide	Strong Alkalis
Chromium	Radioactive Materials	Many, many more.....

Non-porous Refex pH and ORP sensors can be safely handled and disposed of without environmental impact or legal risk.

REFEX Sensors declares that the REFEX pH/mV electrode program is classified as “simple apparatus”

“Hazardous Areas” are areas where flammable materials are handled and any leak or spill has the potential to form an explosive atmosphere.

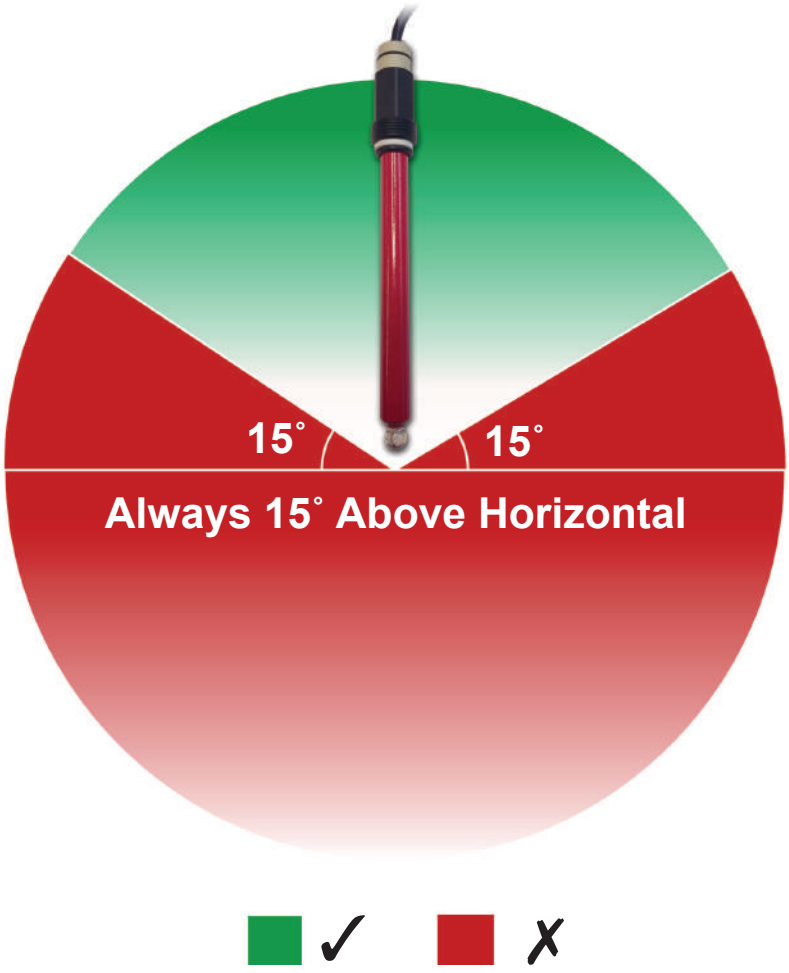
“Intrinsically Safe” is a practice where one is restricting the energy available to electrical equipment in this potentially hazardous area so that a spark or hot surface can not occur due to any type of electrical fault. The IEC (International Electrical Code) states that: “Equipment must not store or generate more than 1.2V, 0.1A, 20 micro joules, and 25mW.” A certified IS interface (Barrier) limits the voltage and current that can reach the equipment in the hazardous area under fault conditions

“Simple Apparatus” devices are able to be used in an Intrinsically Safe area without certification because they do not store energy (See definition below). They include thermocouples, resistive sensors, nernstian pH/mV sensors, LED’s and switches. The proper IS interface must still be used with any Simple Apparatus device.

“Simple Apparatus” such as thermocouples, resistive sensors, nernstian pH/mV sensors, LED’s and switches may be employed in a hazardous area without certification provided that it does not generate or store more than 1.2V, 0.1A, 20킷 and 25mW. This IEC definition is now used in the USA and Canada.

“Simple Apparatus” can be defined as the following: a device that does not generate or store energy.

Correct Electrode Installation



REFEX Solid State Reference

REFEX reference sensors are designed for arduous application particularly where fouling or poisoning conditions exist. The reference uses a highly stable non-porous polymetric interface in place of the traditional porous liquid junction used by all conventional reference electrodes.

The active reference area is the whole of the outside surface of the electrode, this super large contact area means that the electrode is supremely resistant to coatings.

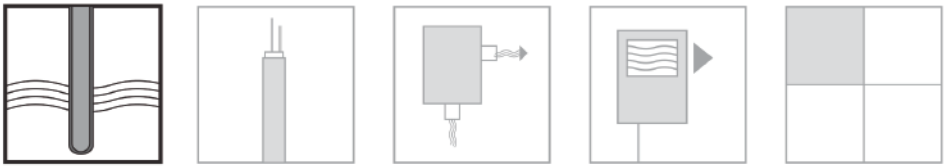
Poisoning effects are eliminated because the polymetric reference material is ionicly conductive, but is not porous, consequently electrolyte and process fluids are not exchanged.

Features

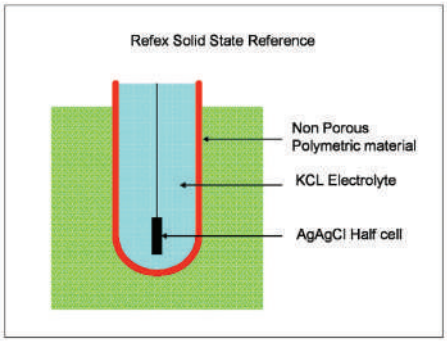
- Unique non porous polymetric reference
- Highly resistant to coatings
- Super large active reference area
- Highly resistant to poisoning

System Configuration

Manufactured by Refex Sensors Ltd



General Specifications
Maximum Temperature 100ºC
Maximum Pressure 10 BarG
Sensor Length 120mm
Sensor Diameter 12mm



Part Numbers
For DIN Fittings YG-5710 (single reference electrode)
For Compact Fittings YG-2001 (combination electrode)

Application Examples
The Refex electrode is exceptionally resistant to applications containing poisons such as cyanide, ammonia and sulfides. This immunity is achieved because the polymetric reference is ionically conductive but not porous and prevents elements of the process from contaminating the electrode causing drift and inevitable failure.

Petroleum Refining - Sour Water Stripper
Used to remove ammonia and dissolved hydrogen sulfide from sour water the stripper prevents a challenging pH measurement application. The stripper is operated at around 80ºC to facilitate removal of the gases. Hydrogen sulfide can block the reference by precipitating silver whilst ammonia and cyanide poison the reference by forming a complex with the silver ion. These effects can be so severe that traditional references may last only days. The Refex sensor is not porous so does not suffer these effects because the polymetric reference is a non porous, impermiable barrier to the poisoning process chemicals. Refex lifetime in this application typically exceeds 12 months.

Municiple Waste Water Treatment
Sulfides also buildup in waste water systems due to the anaerobic (without oxygen) conditions that commonly occur. As with sour water in the petroleum industry the non porous Refex reference is a barrier to the dissolved sulfides, it prevents any precipitation of silver and so is not effected by the pronounced drift and failure that will rapidly destroy traditional porous reference systems

REFEX pH electrode for PR10 Yokogawa Retractable Immersion System

Refex pH Combined Electrode Type EC-FT-2001-Pt1000-120mm
5/10/15 m cables lengths available

"Long Life" Refex pH Combination Electrode PG13.5 Free turning Head Cap. Non Porous Reference " cannot be fouled or poisoned" resistant to all Oil and Gas and Petrochemical processes.

- pH range 0-13
- Reference AgAgCl/2.8 mol KCl sealed
- Reference Interface: Non Porous
- Temp 0-100 °C
- Pressure 20 BAR at 80°C
- Temp Comp: Pt1000
- Viton O rings
- Dimensions Dia. 12mm x L=120mm
- Head Cap: PG13.5 Free Turning.
- Wetted Surfaces. pH glass/Viton O ring/ 316 stainless.

Electrode type:
EC- FT-2001-Pt1000-120mm,
5m/10m/15m cable length options.

PR10 Yokogawa Retractable
Immersion System

EC-FT-2001-Pt1000
120mm

REFEX Non Porous pH/mV electrodes for Yokogawa flow cells and pH Instruments

REFEX manufactures a range of probes designed to be direct replacements for Yokogawa™ brand electrodes in the field. REFEX probes connect directly to Yokogawa analyzers to provide end users with enhanced measurement capabilities and extended life through utilization of the unique REFEX reference cell interface.

By eliminating the porous junction used by standard pH and ORP probes in favor of an advanced electrochemically active sensor body REFEX provides unmatched measurement stability. Over a decade of operational use has consistently shown that REFEX sensors suffer minimal signal drift and provide exceptionally long life in a wide variety of applications worldwide.

Compared to a ritual weekly recalibration required by many pH sensor installations, REFEX-based sensors often only require a confirmation check every 90 days.

Changing out an existing brand sensor to a REFEX probe can provide a real savings in terms of replacement parts and maintenance overhead. REFEX sensors work with all modern dual high impedance pH/ORP transmitters, particularly in difficult and demanding applications where probe failure and replacement is commonplace.

Equivalent sensors are often – but not always – direct replacements to the probe already in place.

Try a REFEX probe in your plant and see the REFEX difference firsthand.

__Refex__ Non Porous pH/mV electrodes for __Yokogawa__ flow cells and pH Instruments continued...

YG-5610

Specifications
5610 pH Glass Electrode

pH Range 0 - 12
Temp Range 0 - 100°C
Pressure 10 bar
Impedance <150 MΩ
Dimension 12 x 120mm
Connector Yokogawa Y-Cap

Part No **YG-5610**

YG-5710

Specifications
5710 REFEX Reference

Temp Range 0 - 90 °C
Pressure 10 bar
Impedance <50 kΩ
Dimension 12 x 120mm
Connector Yokogawa Y-Cap

Part No **YG-5710**

YG-2001-120

Specifications
2001 ph/REFEX Combination

Temp Range 0 - 90 °C
Pressure 10 bar
Impedance <50 kΩ
Dimension 12 x 120mm
Glass impedance < 150 mΩ
Connector Yokogawa Y-Cap

Part No **YG-2001-120**

YG-Pt100/1000

Specifications
RTD Temperature Sensor

Resistance 100/1000Ω at 0°C
Pressure 10 bar
Dimension 12 x 120mm
Connector Yokogawa Y-Cap

Part No **YG-Pt100**
YG-Pt1000

YG-Pt2002

Specifications
2002 Pt ORP/Refex

Temp Range 0 - 100 °C
Pressure 20 bar
Impedance <100 kΩ
Dimension 12 x 120mm
Connector Yokogawa Y-Cap

Part No **YG-Pt2002**

Yokogawa type electrode connector

FU20

Yokogawa™ FU-20 Equivalent

"all in one" pH Combination with 3/4" process fittings top/bottom

Refex reference sensors are designed for arduous applications particularly where fouling or poisoning conditions exist. The reference uses a highly stable non-porous polymeric interface instead of a traditional porous liquid junction as used by all conventional YokogawaTM reference electrodes.
The active reference area is the whole of the outside surface of the electrode and this super large contact area means that the electrode is supremely resistant to coatings.
Poisoning effects are eliminated because the polymeric reference material is conductive to ions but not porous; the reference can operate electrically but electrolyte and process fluids are not exchanged.

Specifications - FU20 Equivalent Sensor

pH Range 0 - 12	Reference <50 kΩ	Drift 2 mV / Week
Temp Range 0 - 100°C	Eo Zero pH 7.0 ±15 mV	Connector Screw Terminal Ferrules
Pressure 20 bar @ 50°C	Eo Zero pH 7.0 ±15 mV	Cable Length 5m (other lengths available)

Part No **YG-3/4"-2001-Pt1000-LE-5M**

__Refex__ Non Porous pH/mV electrodes for __Yokogawa__ flow cells and pH Instruments continued...

Yokogawa™ Model FF20/FS20

Flow Fittings for pH/ORP (Redox) measuring loops

For liquid analysis, the sensors are usually mounted in either a flow or an immersion fitting. Therefore Yokogawa has invested considerable design and development time in producing a full range of fittings with particular emphasis on designs that reduce installation and maintenance time and consequently save operation costs.

A high degree of standardisation makes it possible to mount electrodes with DIN dimensions directly into a fitting. For most other types a mounting kit (accessory) is available. A wide choice of construction materials gives the user the optimal solution for any process considering chemical resistance, pressure and temperature specifications. The program includes fittings and subassemblies for mounting of a variety of electrodes and/or a cleaning system.

Features

- Wide choice of construction materials
- High degree of standardisation reduces spare holding requirements
- Direct mounting of sensors with DIN dimensions
- Liquid earth pin for stable measurements
- High pressure and temperature specifications
- Chemical cleaning system as an option for 2-, 3- and 4-hole fitting
- Brush cleaning system as an option for 4-hole fitting only
- Electrolytically polished stainless steel fittings for optimal corrosion resistance.

Yokogawa™ Equivalent Quick Reference Guide

Yokogawa™ Model	REFEX Type No	Description
SM21-AG2	YG-5610-120	12mm pH Glass Electrode
SM21-AG4	YG-5610-120	
SM21-AG6	YG-5610-120	
SM21-AL4	YG-5610-120	
SM21-AL6	YG-5610-120	
SM29-PT9	YG-7610-120	12mm Redox Electrode
SR20-AC11	YG-5710-120	12mm Reference Electrode
SR20-AC22	YG-5710-120	
SC20-AC52	YG-5710-158	
SC20-AP24	YG-5710-120	
SC20-AP26	YG-5710-120	
SR20-AS52	YG-5710-158	
SC21-AAP26	YG-2001-120	12mm pH Combination Probe
SC21-AGP26	YG-2001-120	
SC21-AGC52	YG-2001-158	
SC21-ASP23	YG-2001-120	
FU20-	EC- ¾"2001-PT100-10M-LE	¾" pH Comb. Probe
SM60-T2	YG-PT100	12mm Temperature Probe
SM60-T1	YG-PT1000	

__Refex__ Non Porous pH/mV electrodes for __Yokogawa__ flow cells and pH Instruments continued...

Applications: In-Line and Immersion Systems

- Potable Water Applications
- Optimized Coagulation
- Low Ionic Raw Water and Ultra Pure Water (UPW)
- All Oil & Gas Sour Water
- All Petrochemical Process Water
- Chlor-Alkali - Chlorinated and Waste Brines
- Food and Beverage - CIP and SIP
- Industrial Waste Water
- Waste Water Treatment
- Heavy Metal Processes
- Pulp and Paper

Advantages of Refex Non Porous Electrodes

- Protected Ag/AgCl reference half cell - REFEX barrier/interface prevents all liquid contact/exchange
- Resistant to fouling and poisoning
- Suitable for temperatures between 0…100°C
- Operates in pressures between full vacuum and 20 bar / 290 psi
- Instantaneous response to pH change
- Constant Eo zero - almost maintenance free
- Long electrode life - many times longer than all others
- Compatible with all modern pH instruments with dual high impedance inputs for pH and reference electrodes
- No diffusion potential errors in low ionic waters
- No electrolyte refilling - sealed for life

New REFEX 316 Stainless Steel Extraction Bypass/Flow Cell Arrangement

Accurate • Low Maintenance • Long Electrode Life

Applications:

- Ultra Pure Water / Boiler Feed Waters
- Stack Gas Sour Water Scrubbers
- Sulphur Recovery Units
- Desalter Waters
- Ethylene Quench Waters
- ETP oily waste waters (Immersion DIP)

The REFEX Extraction bypass/flow cell arrangement is designed to retrofit to existing 1/2" 316 stainless steel pipe work. The process connections are 1/2" Swageloc type compression fittings in/out. liquid Earth/Solution ground is integral in the flow cell.

The REFEX Electrode is a 12 x 120 mm combined electrode with inbuilt Pt1000 or Pt100 temp. comp device. The electrode process fitting is PG13.5 free turning electrode cap. Electrode has IP 68 fixed cable (1m/3m/5m/10m lengths) hard wiring back to the pH instrument.

Cable connections:	Stripped/tinned
pH glass electrode:	Transparent wire
pH screen:	Screening braid
Reference:	Green wire
Pt1000 or Pt100:	Red/white reversible
Liquid Earth in flow cell:	Blue wire

Best is **REFEX/Yokogawa** and **REFEX/Knick** and **REFEX/Emerson**. Compatible with these instruments.

pH range: 0-12
Temp: 0-100 ˚C
Pressure full vacuum to 20 BAR

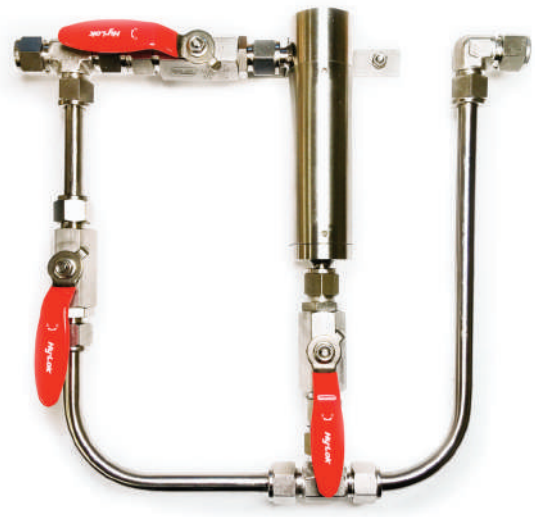
Recommended buffers: DIN 19266 pH 4.01/6.88/9.18

Type Numbers:

FC316BP: Extraction bypass/flow cell

Electrode type:

EC-FT-2001-Pt1000 or **Pt100-1m/3m/5m/10m** cable length options.



37cms x 32cms (approx)

SS316 Flow Cell with ByePass System plus the 1/2" Compression Fittings

REFEX™ 2001 Series 12mm pH Combination Electrode

Maintenance free REFEX™ 2001 Series electrodes are designed for pH measurement applications in many industries. 2001 Series combination electrodes feature the patented REFEX non-porous, hard ionically conductive interface/barrier to prevent reference electrode electrolyte loss and poisoning.

These are available in three different lengths 120mm, 225mm, 325mm and 425mm.

Typical application areas: Petro/Chemical, Pulp & Paper, Pharmaceutical, Water Treatment, UPW

Specifications:

Measuring Method:	pH / reference combination electrode
Reference	Patented non-porous REFEX interface.
Junction/Half Cell:	Ag/AgCl in KCl 2.8 mol/l (sealed for life)
Range:	pH 0...12
Eo Zero vs Ag/AgCl:	pH = 6.8 (+/- 20 mV)
Impedance pH-glass/ref:	200 MΩ Nom. / <100 kΩ
Temperature Range:	0...100°C
Pressure Range:	0...20 bar
Liquid Earth:	No
Temperature Sensor:	Optional 100Ω/1000Ω RTD
Standard Dimensions:	12mm x 120mm
Internal Seals:	Pt/glass
Electrical Connection:	**IP69 fixed cables 1m, 3m, 5m, and 10m**
Recommended Storage:	Hydrate in 2.8 mol/l KCl, ambient temp.

Accessories:

IMPP-1m:	Immersion DIP system
EXBP PG:	Exctraction bypass system

EC-399-2001-PT1000-LE
1m/5m/10m

EC-3/4”-556-2001-Pt1000/Pt100-LE
1m/3m/5m/10m

EXstatic 310

thread G1 ¼“ for weld-in socket DN25

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

Static sensor holder for permanent installation of Ø12mm/120mm-sensors on welding sockets DN25 in tanks or pipelines. The armatures are very easy to install and can be delivered with or without a sensor protection cage. The sensors used, especially glass sensors are very well protected against mechanical influences.

REFEX™ sensors ltd pH

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12/120mm sensors with thread PG13.5 (pHglass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Food
- Pharmaceuticals
- Water treatment

Features

- Designed according to hygienic criteria
- Surface finish Ra<0,78 or Ra<0,37
- Stainless steel AISI 316L / 1.4404
- EPDM sealings with FDA and USP VI approval
- Optional sensor protection cage
- Up to 10 bar and 140 °C
- Protection cap for cable connection

Businesses

Biotechnical industry & food industry, Water, Waste water, Pharmaceutical industry

Ordering Information

Code	Material (wetted parts)	Delivery
0408	Stainless Steel 1.4404 / 316L Ra0,78	2 weeks
0404	Stainless Steel 1.4404 / 316L Ra0,37	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks

Code	Process connection	Delivery
IN25	G1 1/4” (DN25) O-ring-position 25mm	2 weeks

Code	Immersion length	Delivery
070	70mm under process connection	2 weeks

Code	Protection cage	Delivery
0	without	2 weeks
1	with protection cage	2 weeks

Accessories

Code	Description	Delivery
2-087-33-001	Safety weld-in socket DN25 straight, 40mm, 1.4404/ 316L	2 weeks
2-087-33-002	Safety weld-in socket DN25 inclined, 40mm,1.4404/ 316L	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM / FDA USP VI	0 weeks
2-121-01-010	Certificate free of ADCF/BPA according to DIN EN 10204-2.1	0 weeks

EXstatic 311

TriClamp connection

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

Static sensor holder for permanent installation of Ø12mm/120mm-sensors on tanks or pipelines by TriClamp process connection. The armatures are very easy to install and can be delivered with or without a sensor protection cage. The sensors used, especially glass sensors are very well protected against mechanical influences.

REFEX sensors ltd

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12/120mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Food
- Pharmaceuticals

Features

- Designed according to hygienic criteria
- Surface finish Ra<0,78 or Ra<0,37
- Stainless steel AISI 316L / 1.4404
- EPDM sealings with FDA and USP VI approval
- Optional sensor protection cage
- Up to 10 bar and 140 °C
- Protection cap for cable connection

Businesses

Biotechnical industry & food industry, Pharmaceutical industry

Ordering Information

Code	Material (wetted parts)	Delivery
0408	Stainless Steel 1.4404 / 316L Ra0,78	2 weeks
0404	Stainless Steel 1.4404 / 316L Ra0,37	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks

Code	Process connection	Delivery
TC15	TriClamp 1-1,5" (OD Ø50.5mm)	2 weeks
TC20	TriClamp 2.0 (OD Ø64mm)	2 weeks

Code	Immersion length	Delivery
045	45mm under process connection €	2 weeks
080	80 mm under process connection €	2 weeks

Code	Protection cage	Delivery
0	without	2 weeks
1	with protection cage	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM / FDA USP VI	0 weeks
2-121-01-010	Certificate free of ADCF/BPA according to DIN EN 10204-2.1	0 weeks

EXstatic 312

hygienic process connections

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

Static sensor holder for permanent installation of Ø12mm/120mm-sensors on tanks or pipelines by hygienic process connections.
The armatures are very easy to install and can be delivered with or without a sensor protection cage.
The sensors used, especially glass sensors are very well protected against mechanical influences.

REFEX sensors ltd pH

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12 / 120mm sensors with thread PG13.5 (pHglass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Food
- Pharmaceuticals

Features

- Designed according to hygienic criteria
- Surface finish Ra<0,78 or Ra<0,37
- Stainless steel AISI 316L / 1.4404
- EPDM sealings with FDA and USP VI approval
- Process connections according to EHEDG / 3A
- Optional sensor protection cage
- Up to 10 bar and 140 °C
- Protection cap for cable connection

Businesses

Biotechnical industry & food industry, Pharmaceutical industry

Ordering Information

Code	Material (wetted parts)	Delivery
0408	Stainless Steel 1.4404 / 316L Ra0,78	2 weeks
0404	Stainless Steel 1.4404 / 316L Ra0,37	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks

Code	Process connection	Delivery
VARN	Varivent N DN40-125	2 weeks
BCT5	NEUMO BioControl D50	2 weeks

Code	Immersion length	Delivery
040	40mm under process connection	2 weeks

Code	Protection cage	Delivery
0	without	2 weeks
1	with protection cage	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM / FDA USP VI	0 weeks
2-121-01-010	Certificate free of ADCF/BPA according to DIN EN 10204-2.1	0 weeks

EXstatic 315

15°- angled process connection

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

EXstatic 315 is a static sensor holder with 15° angled process connection for permanent installation of Ø12mm/120mm-sensors on tanks or pipelines. TriClamp and hygienic process connections like Varivent and Neumo BioControl are available. EXstatic315 armatures are very easy to install and the used sensor is very well accommodated and protected.

REFEX sensors ltd pH

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12/120mm sensors with thread PG13.5 (pHglass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Food
- Pharmaceuticals
- Especially for vertical pipelines

Features

- Designed according to hygienic criteria
- Surface finish Ra<0,78 or Ra<0,37
- Stainless steel AISI 316L / 1.4404
- EPDM sealings with FDA and USP VI approval
- Up to 10 bar and 140 °C
- Protection cap for cable connection
- 15° angled process connection

Businesses

Biotechnical industry & food industry, Water, Pharmaceutical industry

Ordering Information

Code	Material (wetted parts)	Delivery
0408	Stainless Steel 1.4404 / 316L Ra0,78	2 weeks
0404	Stainless Steel 1.4404 / 316L Ra0,37	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks

Code	Process connection	Delivery
VARN	Varivent N DN40-125	4 weeks
TC15	TriClamp 1-1,5" (OD Ø50.5mm)	2 weeks
TC20	TriClamp 2.0 (OD Ø64mm)	2 weeks
BCT5	NEUMO BioControl D50	4 weeks

Code	Immersion length	Delivery
034	34mm under process connection	2 weeks

Code	Protection cage	Delivery
0	without	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM / FDA USP VI	0 weeks
2-121-01-010	Certificate free of ADCF/BPA according to DIN EN 10204-2.1	0 weeks

EXtract 840M

manual retractable holder with ball valve

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

EXtract 840M is a hand-operated retractable assembly with ball valve made of stainless steel for online pH-measurement in pipes and vessels. Due to the very long, flexible adjustable immersion length the sensor can be very far inserted in the process. It provides the ability to separate the sensor under current process conditions from the process to carry out a cleaning or calibration or to take out the sensor along with the whole armature. The innovative design provides maximum safety for ease of use.

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12-120mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions long insertion depth

Features

- Robust design, with ball valve
- Integrated sealing package
- Automatic locking mechanism at too high process pressures
- Stainless steel AISI 316L / 1.4404
- Immersion length up to 700mm nominal
- High variation of process connections
- Applicable up to 12 bar and 130 °C
- Operable to 4 bar

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
03	300mm (nominal)	2 weeks
07	700mm (nominal)	4 weeks

Code	Process connection	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks

Code	Immersion length	Delivery
FD32O	Flange DN32 PN16 without ball valve	2 weeks
FD32B	Flange DN32 PN16 with ball valve	2 weeks
FA14O	Flange ANSI 1 1/4" 150lbs without ball valve	2 weeks
FA14B	Flange ANSI 1 1/4" 150lbs with ball valve	2 weeks

ordering information continued

G14MO	Thread G1 1/4" male without ball valve	2 weeks
G14FB	Thread G1 1/4" female with ball valve	2 weeks
N14MO	Thread NPT G1 1/4" male without ball valve	2 weeks

Code	Protection cage	Delivery
G18	G 1/8" female thread	2 weeks
G14	G 1/4" female thread	2 weeks
N14	1/4" NPT female thread	2 weeks

Accessories

Code	Description	Delivery
2-086-32-001	Set of blind plug G1/8" 1.4404 / 316L for cleaning chamber	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks

EXDip 920

DN50 / ANSI 2” plastics

The Exner models below all accept the REFEX **EC-FT-2001-120 - PT100/1000**

Product description

EXdip 920 is an immersion holder made of plastics with flange connection or suspension and integrated orbital sensor cleaning system for nominal diameter DN50 / 2”. The armature is firmly screwed by a flange connection or by a suspension holder. The built-in sensor is accommodated securely in a protective cage. Directly in the range of the sensor the highly effective orbital cleaning flushing ensures a mechanical cleaning of the sensor. The armature is available in various lengths.

REFEX™ sensors ltd pH

EC-FT-2001-120 - PT100/1000

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12/120mm sensors with thread PG13.5 (pHglass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water and wastewater
- Permanent installation in closed or open tanks, vessels or channels

Features

- Robust design
- Integrated orbital sensor cleaning system
- Extension of sensor-lifetime and reduction of maintenance efforts
- Easy installation and removal of the sensor holder
- PP or PVDF
- Immersion length 500-2500mm
- Minimum size DN50 / 2”
- Up to 6 bar and 80 °C
- No external cleaning devices necessary

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Sealing Material (wetted parts)	Delivery
PP	PP	2 weeks
PV	PVDF	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
120	120mm PG 13,5 Ø12mm	2 weeks
N34	for sensor types with MNPT 3/4” (only “NC”)	4 weeks
N10	for sensor types with MNPT 1” (only “NC”)	4 weeks

Code	Process connection	Delivery
D50	Flange DN50 PN16	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks
SUH	with Suspended Holder	2 weeks

Code	Immersion length	Delivery
05	0.5 meter	2 weeks
10	1 meter	2 weeks
15	1.5 meters	2 weeks
20	2 meters	2 weeks
25	2.5 meters	2 weeks

Code	Cleaning	Delivery
NC	without	2 weeks
SC	with integrated spray cleaning	2 weeks

EXtract 810

stainless steel

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 810 is a retractable holder to be attached on process tanks or tubing. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a pneumatic position signal responds automatically.

Cleaning, rinsing and calibration of the sensor is possible while the process is running.

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Businesses

Chemical industry, Water, Waste water

Features

- Robust design, integrated scraper
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Plug and play installation, colour- and sizecoded connection system
- Integrated limit switches
- Usable in ATEX-areas
- Immersion length up to 107mm
- High variation of process connections and sealing materials
- Up to 16 bar and 140 °C

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Material (wetted parts)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Material (wetted parts)	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Material (wetted parts)	Delivery
D32	Flange DN32 PN16	2 weeks
D40	Flange DN40 PN16	2 weeks
D50	Flange DN50 PN16	2 weeks
A14	Flange ANSI 1 1/4” 150lbs	2 weeks
A12	Flange ANSI 1 1/2” 150lbs	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks
N14	NPT M 1 1/4”	2 weeks
T15	TriClamp 1-1,5” (OD Ø50.5mm)	2 weeks
T20	TriClamp 2.0 (OD Ø64mm)	2 weeks

Code	Material (wetted parts)	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Material (wetted parts)	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-086-32-001	Set of blind plug G1/8” 1.4404 / 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602 / C22 for cleaning chamber	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks

EXtract 815

stainless steel for welding socket DN25

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 815 is a retractable holder to be attached on process tanks or tubing by welding sockets DN25. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a pneumatic position signal responds automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running. An intergrated PTFE scraper allows the use also in rough processes.

REFEX sensors ltd

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Features

- Robust design, integrated PTFE scraper
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Plug and play installation, colour- and sizecoded connection system
- Integrated limit switches
- Usable in ATEX-areas
- Immersion length up to 90mm
- Up to 16 bar and 140 °C
- Stainless steel AISI 316L / 1.4404 or Alloy C22

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Sealing Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Sealing Material (wetted parts)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN28	Ingold DN25 G1 1/4” O-ring-position 28mm	2 weeks
IN50	Ingold DN25 G1 1/4” O-ring position 50mm	3 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Sealing Material (wetted parts)	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-087-33-001	Safety weld-in socket DN25 straight, 40mm, 1.4404/316L	2 weeks
2-087-33-002	Safety weld-in socket DN25 inclined, 40mm, 1.4404/316L	2 weeks
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602/ C22 for cleaning chamber	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM/FDA USP VI	0 weeks

EXtract 820

plastics

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 820 is a retractable holder to be attached on process tanks or tubing. T he drive unit inserts the Sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position, the armature responds automatically with a pneumatic position signal. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

REFEX™ sensors ltd pH

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Features

- Robust design, integrated scraper
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Plug and play installation, colour- and size coded connection system
- Integrated limit switches
- Usable in ATEX-areas
- PP, PVDF, PEEK
- High stability protection cage in Alloy for option PVDF
- Immersion length up to 94mm

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
PP	PP	2 weeks
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D50	Flange DN50 PN16	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks
N14	NPT M 1 1/4”	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8” PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8” PP	2 weeks
2-086-29-001	Set blind plug G1/8” PEEK	2 weeks

EXtract 825

plastic for welding socket DN25

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 825 is a retractable holder to be attached on process tanks or tubing by welding sockets DN25. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a pneumatic position signal responds automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running. An intergrated PTFE scraper allows the use also in rougher processes.

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Features

- Robust design, integrated PTFE scraper
- Usable for DN25 welding socket
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Usable in ATEX-areas
- Immersion length 70mm
- Up to 10 bar and 140 °C
- PP / PVDF or PEEK
- Can be fully automated with pneumatic or electropneumatic control units (e.g. EXmatic 450 or EXmatic 460)

REFEX™ sensors ltd pH

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
PP	PP	2 weeks
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN25	G1 1/4” (DN25) O-ring-position 25mm	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8” PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8” PP	2 weeks
2-086-29-001	Set blind plug G1/8” PEEK	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks

EXtract 830

hygienic applications

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 830 is a retractable holder made of stainless steel in hygienic design to be attached on process tanks or tubing. T he drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a pneumatic position signal responds automatically.

Cleaning, rinsing and calibration of the sensor is possible while the process is running.

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Food
- Pharmaceuticals
- Requirement of automated sensor cleaning or calibration

Businesses

Biotechnical industry & food industry, Water, Waste water, Pharmaceutical industry

Features

- Hygienic design, EHEDG- / 3A-approved process connections
- Extension of sensor-lif etime and reducing of maintenance efforts
- Automatic saf ety lock while sensor is removed
- Plug and play installation, colour- and sizecoded connection system
- Integrated limit switches
- Usable in ATEX-areas
- AISI 316L / 1.4404, surf ace finish Ra < 0.78 eletropolished
- High variation of process connections and sealing materials
- Up to 10 bar and 140 °C

REFEX sensors ltd

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN28	Ingold DN25 G1 1/4” O-Ring-position 28mm	2 weeks
IH25	Ingold DN25 G1 1/4” HyCIP® - OP25mm	2 weeks
IH50	Ingold DN25 G1 1/4” HyCIP® - OP50mm	2 weeks
IH55	Ingold DN25 G1 1/4” HyCIP® - OP55mm	2 weeks
VARN	Varivent N DN40-125	3 weeks
TC15	TriClamp 1-1,5” (OD Ø50.5mm)	3 weeks
TC20	TriClamp 2.0 (OD Ø64mm)	3 weeks
BCT5	NEUMO BioControl D50	3 weeks
MV50	DIN 11851 DN50 (dary connection)	3 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-087-33-001	Safety weld-in socket DN25 straight, 40mm, 1.4404/ 316L	2 weeks
2-087-33-002	Safety weld-in socket DN25 inclined, 40mm, 1.4404/ 316L	2 weeks
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks
2-069-33-007	Cleaning connectors EXtract830(M) TriClamp 3/4” Ø10,3mm (2 pieces incl. EPDM seals) for HyCIP® - G1 1/4”	2 weeks
2-069-33-008	Cleaning connectors EXtract830(M) TriClamp 3/4” Ø10,3mm (2 pieces incl. FPM seals) for HyCIP® - G1 1/4”	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM/FDA USP VI	0 weeks

EXtract 810M

stainless steel

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

EXtract 810M is a manual retractable holder made of stainless steel or Alloy to be attached on process tanks or tubing. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically.

Cleaning, rinsing and calibration of the sensor is possible while the process is running.

REFEX™ sensors ltd pH

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12/225mm or Ø12/280mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions

Features

- Robust design, integrated scraper
- Automatic locking system with indicators for measurement- and service position
- Automatic saf ety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- Stainless steel AISI 316L / 1.4404 or Alloy
- Immersion length up to 107mm
- Usable in ATEX-areas
- High variation of process connections and sealing materials
- Up to 16 bar and 140 °C

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Material (wetted parts)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Material (wetted parts)	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Material (wetted parts)	Delivery
D32	Flange DN32 PN16	2 weeks
D40	Flange DN40 PN16	2 weeks
D50	Flange DN50 PN16	2 weeks
A14	Flange ANSI 1 1/4” 150lbs	2 weeks
A12	Flange ANSI 1 1/2” 150lbs	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks
N14	NPT M 1 1/4”	2 weeks
T15	TriClamp 1-1,5” (OD Ø50.5mm)	2 weeks
T20	TriClamp 2.0 (OD Ø64mm)	2 weeks

Code	Material (wetted parts)	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Material (wetted parts)	Delivery
00	without	2 weeks

Accessories

Code	Description	Delivery
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602/ C22 for cleaning chamber	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks

EXtract 815M

stainless steel for welding socket DN25

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

EXtract 815M is a manual retractable holder made of stainless steel or Alloy to be attached on process tanks or tubing by welding sockets DN25. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running. The innovative design provides maximum safety and easy operation. An integrated PT FE scraper allows the use even in rough processes.

REFEX™ sensors ltd

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12/225mm or Ø12/280mm sensors with thread PG13.5 (pH-glass-and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions

Businesses

Chemical industry, Water, Waste water

Features

- Robust design, integrated PTFE scraper
- Automatic locking system with indicators for measurement- and service position
- Automatic saf ety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- Stainless steel AISI 316L / 1.4404 or Alloy
- Immersion length up to 90mm
- Usable in ATEX-areas
- Up to 16 bar and 140 °C
- Drive unit free of maintenance

Ordering Information

Code	Sealing Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Sealing Material (wetted parts)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN28	Ingold DN25 G1 1/4” O-ring-position 28mm	2 weeks
IN50	Ingold DN25 G1 1/4” O-ring position 50mm	3 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT f emale thread	2 weeks

Code	Position switch	Delivery
00	without €	2 weeks

Accessories

Code	Description	Delivery
2-087-33-001	Safety weld-in socket DN25 straight, 40mm, 1.4404/316L	2 weeks
2-087-33-002	Safety weld-in socket DN25 inclined, 40mm, 1.4404/316L	2 weeks
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602/ C22 for cleaning chamber	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks

Certificates

Code	Description	Delivery
2-121-01-001	Certificate EN10204-2.2 for surface-finishing (wetted parts)	0 weeks
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM/FDA USP VI	0 weeks

EXtract 820M

plastics

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 820M is a manual retractable holder made of plastics to be attached on process tanks or tubing. The drive unit inserts the Sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

REFEX sensors ltd pH

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind Ø12/225mm or Ø12/280mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions

Features

- Robust design, integrated scraper
- Automatic locking system with indicators f or measurement- and service position
- Automatic safety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- PP, PVDF or PEEK available
- Usable in ATEX-areas
- High stability protection cage in Alloy for option
- PVDFImmersion length up to 94mm
- High variation of process connections and sealing materials
- Up to 10 bar and 140 °C

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
PP	PP	2 weeks
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D50	Flange DN50 PN16	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks
N14	NPT M 1 1/4”	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
00	without	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8” PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8” PP	2 weeks
2-086-29-001	Set blind plug G1/8” PEEK	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks

EXtract 825M

plastic for welding socket DN25

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 825M is a manual driven sensor housing to be attached on process tanks or tubing by welding sockets DN25. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a pneumatic position signal responds automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running. An intergrated PT FE scraper allows the use also in rougher processes.

REFEX™ sensors ltd

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes

Businesses

Chemical industry, Water, Waste water

Features

- Robust design, integrated PTFE scraper
- Usable f or DN25 welding socket
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Usable in ATEX-areas
- Immersion length 70mm
- Up to 10 bar and 140 °C
- PP / PVDF or PEEK
- Drive unit free of maintenance

Ordering Information

Code	Material (wetted parts)	Delivery
PP	PP	2 weeks
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN25	G1 1/4” (DN25) O-ring-position 25mm	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
00	without	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8” PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8” PP	2 weeks
2-086-29-001	Set blind plug G1/8” PEEK	2 weeks

EXtract 830M

hygienic installation

The Exner models below all accept the REFEX **EC-FT-2001-225 - PT100/1000**

Product description

Extract 830M is a manual retractable holder made of stainless steel in hygienic design to be attached on process tanks or tubing. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

REFEX™ sensors ltd pH

EC-FT-2001-225 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12-225mm sensors or Ø12-280mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Food
- Pharmaceuticals
- Requirement of sensor replacement under process conditions

Businesses

Biotechnical industry & food industry, Water, Waste water, Pharmaceutical industry

Features

- Hygienic design, EHEDG- / 3A-approved process connections
- Automatic locking system with indicators for measurement- and service position
- Automatic safety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- AISI 316L / 1.4404, surface finish Ra<0.78 electro-polished
- High variation of process connections and sealing materials
- Up to 16 bar and 140 °C
- Drive unit free of maintenance

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks

Code	Sensor type	Delivery
225	225mm PG 13,5 gel-filled	2 weeks
280	280mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
IN28	Ingold DN25 G1 1/4” O-Ring-position 28mm	2 weeks
IH25	Ingold DN25 G1 1/4” HyCIP® - OP25mm	2 weeks
IH50	Ingold DN25 G1 1/4” HyCIP® - OP50mm	2 weeks
IH55	Ingold DN25 G1 1/4” HyCIP® - OP55mm	2 weeks
VARN	Varivent N DN40-125	3 weeks
TC15	TriClamp 1-1,5” (OD Ø50.5mm)	3 weeks
TC20	TriClamp 2.0 (OD Ø64mm)	3 weeks
BCT5	NEUMO BioControl D50	3 weeks
MV50	DIN 11851 DN50 (dary connection)	3 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
00	without	0 weeks

Accessories

Code	Description	Delivery
2-087-33-001	Safety weld-in socket DN25 straight, 40mm, 1.4404/ 316L	2 weeks
2-087-33-002	Safety weld-in socket DN25 inclined, 40mm, 1.4404/ 316L	2 weeks
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks
2-140-33-002	Safety bracket SK25 for welding socket DN25 (Ingold)	2 weeks
2-069-33-007	Cleaning connectors EXtract830(M) TriClamp 3/4” Ø10,3mm (2 pieces incl. EPDM seals) for HyCIP® - G1 1/4”	2 weeks
2-069-33-008	Cleaning connectors EXtract830(M) TriClamp 3/4” Ø10,3mm (2 pieces incl. FPM seals) for HyCIP® - G1 1/4”	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM/FDA USP VI	0 weeks

EXtract 811

stainless steel, extended immersion

The Exner models below all accept the REFEX **EC-FT-2001-325 - PT100/1000**

Product description

Extract 811 is a retractable holder to be attached on process tanks or tubing with an extended immersion length up to 207mm. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of “measuring” or “service”, the armature responds automatically by a pneumatic position signal. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

Applications

- For all kind of Ø12-325mm sensors or Ø12-380mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Features

- Robust design, integrated scraper
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Plug and play installation, colour- and sizecoded connection system
- Integrated limit switches
- Usable in ATEX-areas
- Immersion length up to 207mm
- High variation of process connections and sealing materials
- Up to 16 bar and 140 °C

Businesses

Chemical industry, Water, Waste water

EC-FT-2001-325 - PT100/1000

Cable length 1m/3m/5m/10m

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
325	325mm PG 13,5 gel-filled	2 weeks
380	380mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D40	Flange DN40 PN16	2 weeks
D50	Flange DN50 PN16	2 weeks
A12	Flange ANSI 1 1/2” 150lbs	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602/ C22 for cleaning chamber	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks

EXtract 821

plastics, extended immersion

The Exner models below all accept the REFEX **EC-FT-2001-325 - PT100/1000**

Product description

Extract 821 is a retractable holder made of plastics to be attached on process tanks or tubing with an extended immersion length up to 207mm. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of "measuring" or "service", the armature responds automatically by a pneumatic position signal. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

Applications

- For all kind of Ø12-325mm sensors or Ø12-380mm liquid filled sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

Features

- Robust design, integrated scraper
- Extension of sensor-lifetime and reducing of maintenance efforts
- Automatic safety lock while sensor is removed
- Plug and play installation, colour- and sizecoded connection system
- Integrated limit switches
- Usable in ATEX-areas
- PVDF, PEEK
- High stability protection cage in Alloy for option PVDF
- Immersion length up to 194mm

Businesses

Chemical industry, Water, Waste water

REFEX™ sensors ltd pH

EC-FT-2001-325 - PT100/1000

Cable length 1m/3m/5m/10m

Ordering Information

Code	Material (wetted parts)	Delivery
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type Price Delivery	
325	325mm PG 13,5 gel-filled	2 weeks
380	380mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D50	Flange DN50 PN16	2 weeks
A20	Flange ANSI 2" 150lbs	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8" female thread	2 weeks
G14	G 1/4" female thread	2 weeks
N14	1/4" NPT female thread	2 weeks

Code	Position switch	Delivery
PN	pneumatic	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8" PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8" PP	2 weeks
2-086-29-001	Set blind plug G1/8" PEEK	2 weeks

EXtract 811M

stainless steel, extended immersion

The Exner models below all accept the REFEX **EC-FT-2001-325 - PT100/1000**

Product description

Extract 811M is a manual retractable holder made of stainless steel or Alloy to be attached on process tanks or tubing with an extended immersion length up to 207mm. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

Applications

- For all kind of Ø12-325mm sensors or Ø12-380mm liquid f illed sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions

Features

- Robust design, integrated scraper
- Automatic locking system with indicators for measurement- and service position
- Automatic saf ety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- Stainless steel AISI 316L / 1.4404 or Alloy
- Usable in ATEX-areas
- Immersion length up to 207mm
- High variation of process connections and sealing materials
- Up to 16 bar and 140 °C

Businesses

Chemical industry, Water, Waste water

REFEX™ sensors ltd pH

EC-FT-2001-325 - PT100/1000

Cable length 1m/3m/5m/10m

Ordering Information

Code	Material (wetted parts)	Delivery
4404	Stainless steel 1.4404 / 316L	2 weeks
HC22	Alloy C22 2.4602	4 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type	Delivery
325	325mm PG 13,5 gel-filled	2 weeks
380	380mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D40	Flange DN40 PN16	2 weeks
D50	Flange DN50 PN16	2 weeks
A12	Flange ANSI 1 1/2” 150lbs	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
00	without	2 weeks

Accessories

Code	Description	Delivery
2-086-32-001	Set of blind plug G1/8” 1.4404/ 316L for cleaning chamber	2 weeks
2-086-34-001	Set blind plug G1/8” 2.4602/ C22 for cleaning chamber	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing	2 weeks

Certificates

Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks

EXtract 821M

plastics, extended immersion

The Exner models below all accept the REFEX **EC-FT-2001-325 - PT100/1000**

Product description

Extract 821M is a manual retractable holder made of plastics to be attached on process tanks or tubing with an extended immersion length up to 207mm. The drive unit inserts the sensor into the process medium and back into the cleaning chamber. When reaching the final position of the “measuring” or “service” position a safety knob locks each position automatically. Cleaning, rinsing and calibration of the sensor is possible while the process is running.

REFEX™ sensors ltd pH

EC-FT-2001-325 - PT100/1000

Cable length 1m/3m/5m/10m

Applications

- For all kind of Ø12-325mm sensors or Ø12-380mm liquid f illed sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of sensor replacement under process conditions

Features

- Robust design, integrated scraper
- Automatic locking system with indicators for measurement- and service position
- Automatic saf ety lock while sensor is removed
- Safe handling under higher process pressure due to unique rotary drive
- PVDF or PEEK
- High stability protection cage in Alloy for option PVDF
- Usable in ATEX-areas
- Immersion length up to 194mm
- High variation of process connections and sealing materials

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
PVDF	PVDF	2 weeks
PEEK	PEEK	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	3 weeks

Code	Sensor type Price	Delivery
325	325mm PG 13,5 gel-filled	2 weeks
380	380mm PG 13,5 liquid filled	2 weeks

Code	Process connection	Delivery
D50	Flange DN50 PN16	2 weeks
A20	Flange ANSI 2” 150lbs	2 weeks

Code	Cleaning connection	Delivery
G18	G 1/8” female thread	2 weeks
G14	G 1/4” female thread	2 weeks
N14	1/4” NPT female thread	2 weeks

Code	Position switch	Delivery
00	without €	2 weeks

Accessories

Code	Description	Delivery
2-086-23-001	Set blind plug G1/8” PVDF for cleaning chamber	2 weeks
2-086-22-001	Set blind plug G1/8” PP	2 weeks
2-086-29-001	Set blind plug G1/8” PEEK	2 weeks
2-140-26-001	Unlocking device for insertion rod EXtract M	2 weeks
2-140-10-001	Service tool PG13.5 for retractable housing €	2 weeks

REFEX™ Series 399 1” NPT pH Combination Electrode

Maintenance free REFEX™ Series 399 electrodes are designed for pH measurement in rugged applications. Series 399 combination electrodes feature the patented REFEX Contact Window, a non-porous, hard ionically conductive interface/barrier to prevent reference electrode electrolyte loss and poisoning.

Typical application areas: Petro/Chemical, Pulp & Paper, Water Treatment, UPW

Specifications

Measuring Method:	pH / reference combination electrode
Reference:	Patented non-porous REFEX interface.
Junction/Half Cell:	Ag/AgCl in KCl 2.8 mol/l (sealed for life)
Range:	pH 0...12
Eo Zero vs Ag/AgCl:	pH = 6.8 (+/- 20 mV)
Impedance pH-glass/ref:	200 MΩ Nom. / <100 kΩ
Temperature Range:	0...100°C / 212°F
Pressure Range:	0...20 bar / 290 psi
Liquid Earth:	Optional 316 SS LE available
Temperature Sensor:	Optional 100Ω/1000Ω RTD
Standard Dimensions:	1” NPT threaded bodies
Electrode Body Material:	PVDF standard; Triton optional
Electrical Connection:	Cable 1m, 5m, 10m, others
Recommended Storage:	Hydrate in 2.8 mol/l KCl, ambient temp.

The Exner model below accepts the REFEX EC - 1”- 2001 - PT100/1000 - LE

EC - 1”- 2001 - PT100/1000 - LE

Cable length
1m/3m/5m/10m

EXstatic 340

universal sensor holder

The Exner models below all accept the REFEX **EC - 1”- 2001 - PT100/1000 - LE**

Product description

EXstatic340 is an universal static sensor holder made of stainless steel or plastics for permanent installation of Ø12mm/120mm-sensors in tanks or pipes mainly in established ¾” NPT or 1” NPT sockets. The Armature is suitable for the replacement of US fixed installation sensors. Measuring points for pH and other parameters can be adapted to modern European measuring technology.

REFEX™ sensors ltd pH

EC - 1”- 2001 - PT100/1000 - LE

Cable length
1m/3m/5m/10m

Applications

- For all kind of Ø12/120mm sensors with thread PG13.5 (pH-glass and ISFET sensors, conductivity or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water
- Wastewater

Features

- Replacement f or US-sensors with NPT-thread
- Stainless steel AISI 316L / 1.4404 / PVDF / PP
- Sealing compounds EPDM / FPM (Viton) / FFKM (Kalrez)
- Process connection NPT ¾” or 1”
- Optional sensor protection cage
- Up to 10 bar and 140 °C

Businesses

Chemical industry, Water, Waste water

Ordering Information

Code	Material (wetted parts)	Delivery
04	Stainless steel 1.4404 / 316L Ra0,78	2 weeks
PP	PP	2 weeks
PV	PVDF	4 weeks

Code	Process connection Price Delivery	
N10	MNPT 1”	2 weeks
N34	MNPT 3/4”	2 weeks

Code	Sealing material (wetted sealings)	Delivery
EPD	EPDM/FDA/USP VI	2 weeks
FPM	FPM (Viton)	2 weeks
FKM	FFKM (Kalrez)	2 weeks

Code	Protection cage	Delivery
0	without	2 weeks
1	with protection cage	2 weeks

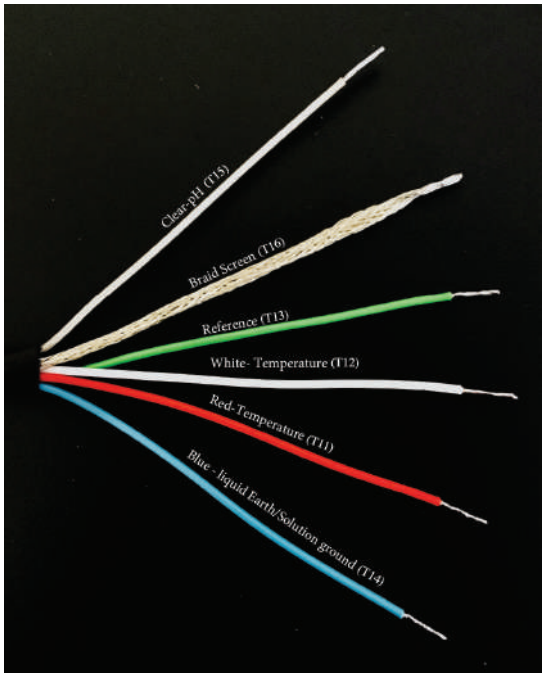
Certificates

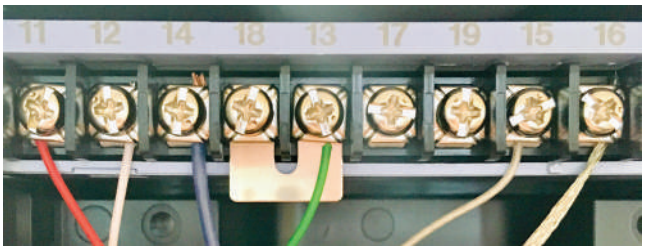
Code	Description	Delivery
2-121-01-002	Certificate EN10204-3.1 for material (wetted parts)	0 weeks
2-121-01-003	Certificate for elastomer compound EPDM / FDA USP VI	0 weeks
2-121-01-010	Certificate free of ADCF/ BPA according to DIN EN 10204-2.1	0 weeks

REFEX pH electrode hard wiring to
Yokogawa pH to FLXA 202 P transmitter

Wiring Connections:

CLEAR wire on REFEX Electrode	Terminal # 15 on Yokogawa FLXA202 ph Meter
COPPER BRAID on REFEX Electrode	Terminal # 16
GREEN wire on REFEX Electrode	Terminal # 13
BLUE wire on REFEX Electrode	Terminal # 14
RED wire on REFEX Electrode	Terminal # 11
WHITE wire on REFEX Electrode	Terminal # 12
A Jumper must be fitted between	**Terminals 13 and 18**





The REFEX Reference System has a higher impedance than conventional porous junctions therefore the impedance setting needs to be changed on the Yokogawa instrument.

Enter the **SETUP**
Select **COMISSIONING – ENTER**
Select **MEASUREMENT SETUP – ENTER**
Select **IMPEDANCE SETTINGS – ENTER**
Switch setting from **LOW** to **HIGH IMPEDANCE** on **INPUT 2**

REFEX™ sensors ltd

REFEX pH electrode hard wiring to Yokogawa pH to EXA PH202 meter

Wiring Connections:

CLEAR wire on REFEX Electrode	Terminal # 15 on Yokogawa EXA PH202 pH Meter
COPPER BRAID on REFEX Electrode	Terminal # 16 on meter
GREEN wire on REFEX Electrode	Terminal # 13 on meter
BLUE wire on REFEX Electrode	Terminal # 14 on meter
RED wire on REFEX Electrode	Terminal # 11 on meter
WHITE wire on REFEX Electrode	Terminal # 12 on meter

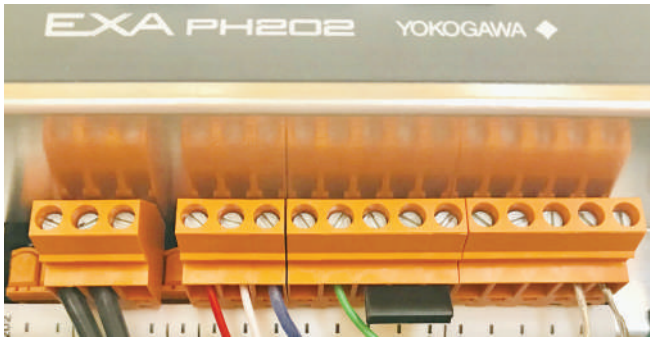
Place Jumper in **LOW IMP** Terminals on **INPUT 2**

TO CHANGE IMPEDANCE FROM LOW TO HIGH ON REFERENCE INPUT

Enter - **SERVICE - YES**

Enter - **CODE - 04**

Change setting on **INPUT Z2.CHK** to **0.1.0**



REFEX pH electrode hard wiring to
KNICK ECO 2405 pH meter

Wiring Connections:

CLEAR wire on Refex Electrode – Terminal # 1

GREEN wire on Refex Electrode – Terminal # 2

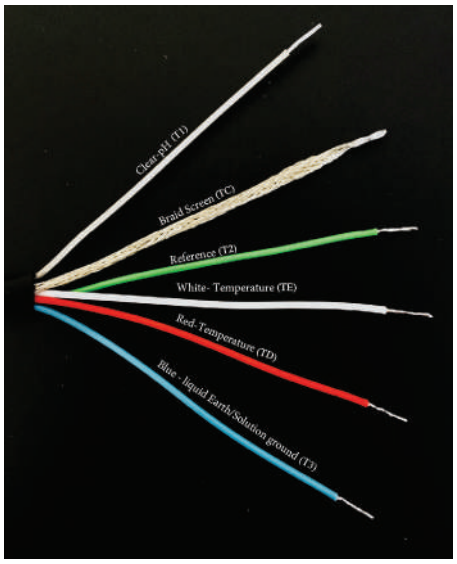
BLUE wire on Refex Electrode – Terminal # 3

COPPER BRAID wire on Refex Electrode – Terminal C

RED wire on Refex Electrode – Terminal – D

WHITE wire on Refex Electrode – Terminal – E

ESD SHIELD MUST BE RE-FITTED OVER CONNECTION BLOCKS



REFEX pH electrode hard wiring to
KNICK Stratos PRO 2 Wire Ex pH meter

Wiring Connections:

CLEAR Wire on REFEX Electrode – Terminal A

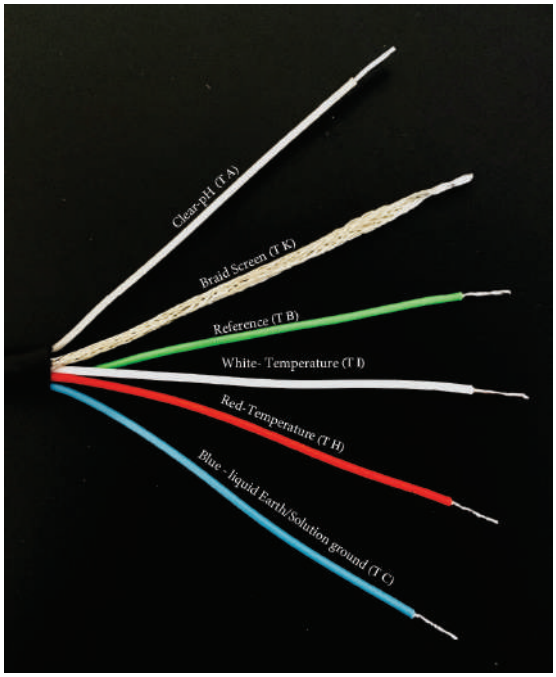
GREEN Wire on REFEX Electrode – Terminal B

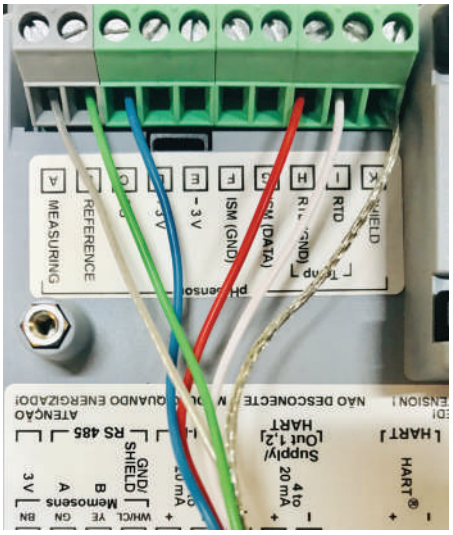
BLUE Wire on REFEX Electrode – Terminal C

COPPER BRAID on REFEX Electrode – Terminal K

RED Wire on REFEX Electrode – Terminal H

WHITE Wire on REFEX Electrode – Terminal I



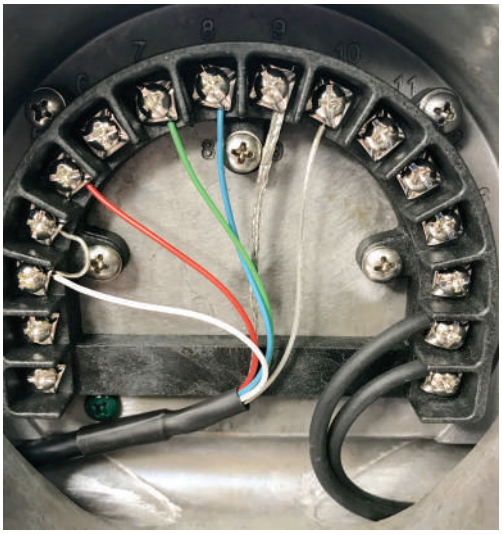


REFEX pH electrode hard wiring to
Rosemount 5081 Explosion - proof transmitter

Wiring Connections:

CLEAR wire on REFEX Electrode	Terminal # 10 on Rosemount 5081 ph meter
COPPER BRAID wire on REFEX Electrode	Terminal # 9 on meter
GREEN wire on REFEX Electrode	Terminal # 7 on meter
BLUE wire on REFEX Electrode	Terminal # 8 on meter
RED wire on REFEX Electrode	Terminal # 5 on meter
WHITE wire on REFEX Electrode	Terminal # 3 on meter

JUMPER MUST BE FITTED BETWEEN TERMINALS 3 AND 4



REFEX pH electrode hard wiring to
ABB AX 400 Series Dual Channel pH meter

Wiring Connections for Sensor # 1:

CLEAR wire on REFEX Electrode - Terminal - B8

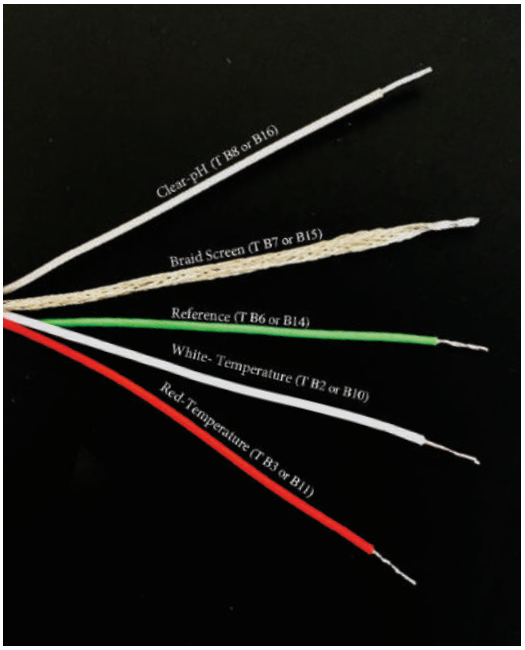
COPPER BRAID wire on REFEX Electrode - Terminal - B7

GREEN wire on REFEX Electrode - Terminal - B6

RED wire on REFEX Electrode - Terminal - B3

WHITE wire on REFEX Electrode - Terminal - B2

LINK JUMPER BETWEEN TERMINALS B1 and B2



Wiring Connections for Sensor # 2:

CLEAR wire on REFEX Electrode - Terminal - B16

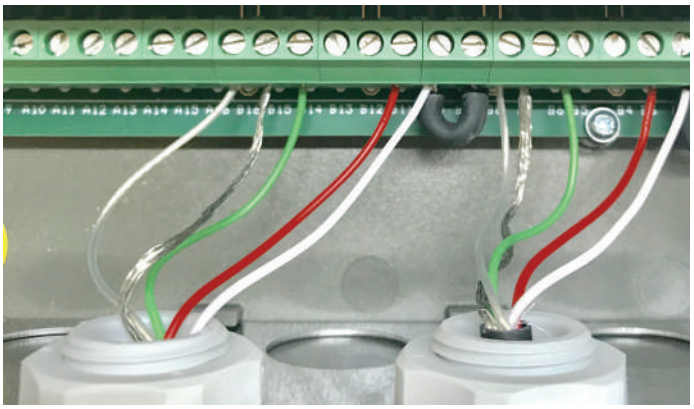
COPPER BRAID wire on REFEX Electrode - Terminal - B15

GREEN wire on REFEX Electrode - Terminal - B14

RED wire on REFEX Electrode - Terminal - B11

WHITE wire on REFEX Electrode - Terminal - B10

LINK JUMPER BETWEEN TERMINALS B9 and B10



REFEX pH electrode hard wiring to
ABB APA 592 pH meter

Wiring Connections:

CLEAR Wire on REFEX Electrode - Terminal # 4

GREEN Wire on REFEX Electrode - Terminal # 6

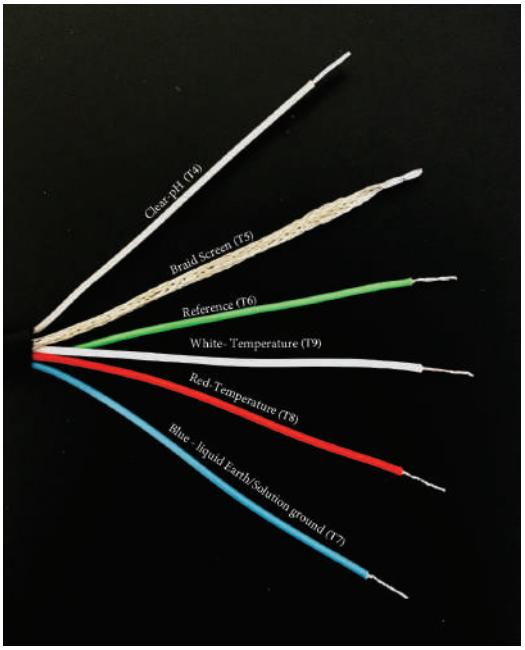
BLUE Wire on REFEX Electrode - Terminal # 7

COPPER BRAID on REFEX Electrode - Terminal # 5

RED Wire on REFEX Electrode - Terminal # 8

WHITE Wire on REFEX Electrode - Terminal # 9

PLACE JUMPER BETWEEN TERMINAL # 9 AND TERMINAL # 11



REFEX pH electrode hard wiring to
TOA DKK HBM 100B pH meter

Wiring Connections:

CLEAR wire on REFEX Electrode – Terminal 1 (G)

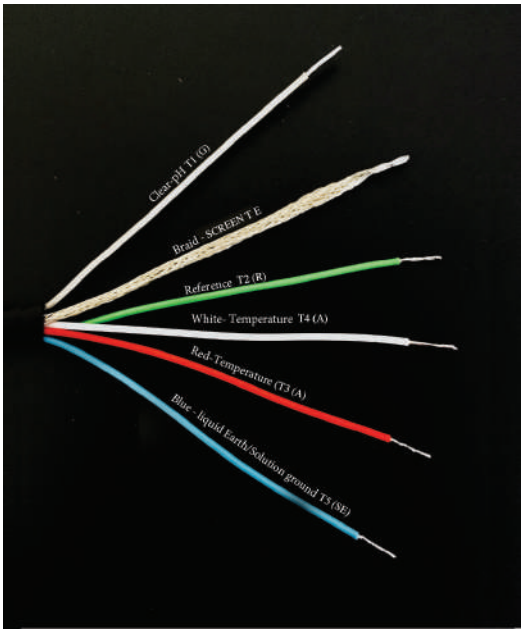
GREEN wire on REFEX Electrode – Terminal 2 (R)

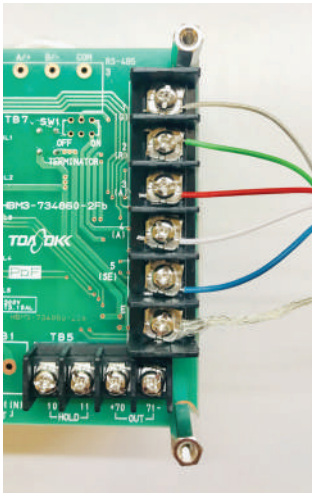
RED wire on REFEX Electrode – Terminal 3 (A)

WHITE wire on REFEX Electrode – Terminal 4 (A)

BLUE wire on REFEX Electrode – Terminal 5 (SE)

COPPER BRAID wire on REFEX Electrode – Terminal E





REFEX pH electrode hard wiring to
HACH si 792 pH meter

Loop Power Supply ONLY

Wiring Connections:

CLEAR wire on REFEX Electrode – Terminal # 1

COPPER BRAID on REFEX Electrode – Terminal with SHIELD CLAMP

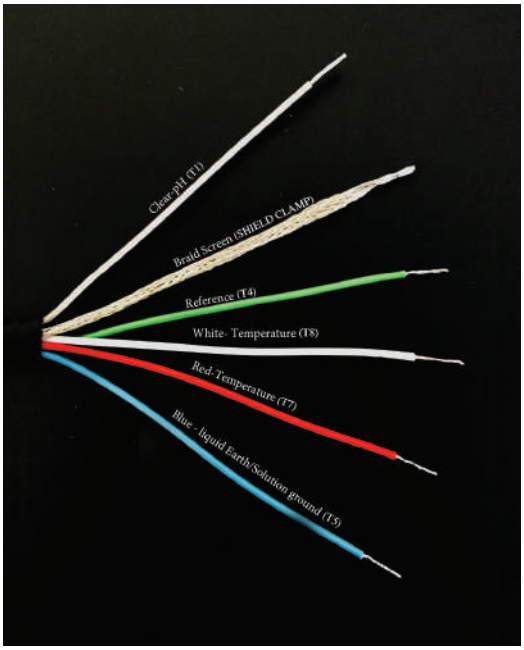
GREEN wire on REFEX Electrode – Terminal #4

BLUE wire on REFEX Electrode – Terminal # 5

RED wire on REFEX Electrode – Terminal # 7

WHITE wire on REFEX Electrode – Terminal # 8

Please Replace ESD Shield Over Terminals After Connection



Game Changing REFEX pH and ORP Sensors for all petrochemical oil and gas process and Environmental ETP waters

The Refex electrodes have the unique Hard Non Porous Ionically conductive Polymeric reference interface-barrier that prevents all liquid to Liquid contact and exchange between the process waters and the electrodes Reference electrolyte.

Refex electrodes cannot be HC FOULED or poisoned by Hydrogen Sulphide.

24 month operational warranty almost maintenance free.

Long Life Refex electrodes bring significant operational Savings - greatly reduced electrode change outs and thousands of down time maintenance man hours saved.

Compatible with Endress+Hauser, Yokogawa, Knick, Emerson and ABB pH transmitters. Also compatible with the Endress+Hauser's **CPA 250** and **CPA 240** flow cells (3 ports for PG13.5 head cap 12 x 120 mm electrodes).

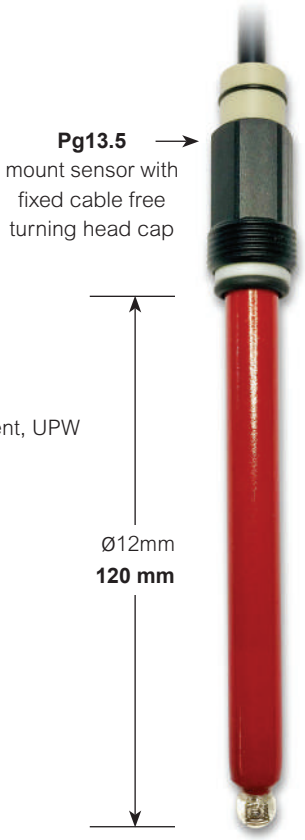
Typical application areas: Petro/Chemical, Pulp & Paper, Pharmaceutical, Water Treatment, UPW

Specifications:

Measuring Method:	pH / reference combination electrode
Reference	Patented non-porous REFEX interface.
Junction/Half Cell:	Ag/AgCl in KCl 2.8 mol/l (sealed for life)
Range:	pH 0...12
Eo Zero vs Ag/AgCl:	pH = 6.8 (+/- 20 mV)
Impedance pH-glass/ref:	200 MΩ Nom. / <100 kΩ
Temperature Range:	0...100°C
Pressure Range:	0...20 bar
Liquid Earth:	No
Temperature Sensor:	Optional 100Ω/1000Ω RTD
Standard Dimensions:	12mm x 120mm
Internal Seals:	Pt/glass
Electrical Connection:	**IP69 fixed cables 1m, 3m, 5m, 10m and 15m**
Recommended Storage:	Hydrate in 2.8 mol/l KCl, ambient temp.

Accessories:

IMPP-1m:	Immersion DIP system
EXBP PG:	Exctraction bypass system



Single combined pH Combi with TC
ECFT-2001-Pt1000-1/3/5/10m

Compatible with
CPA 240 /CPA 250 flow cells

REFEX pH electrode hard wiring to
ENDRESS + HAUSER LIQUILINE CM42 pH Meter

Wiring Connections WITHOUT Liquid Earth/Solution Ground:

Clear wire (pH glass) term 317

Braid (screen) and **Green wire** (Ref) term 320

White wire Pt1000/Pt100 term 113

Red wire Pt1000/Pt100 term 112

Install jumper between terminals 111 and 113

Important:

To Change Configuration for Liquid Earth/Solution Ground

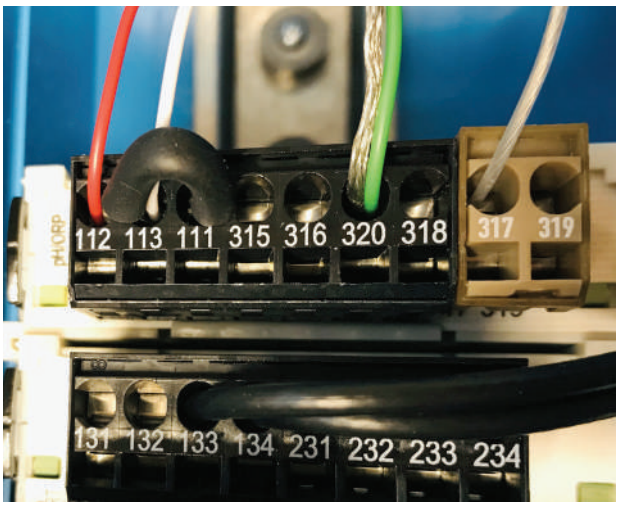
SELECT - **SETUP**

SELECT - **SENSOR PH/ORP**

SCROLL DOWN TO - **POTENTIAL MATCHING**

SCROLL DOWN TO - **DIAGNOSTICS LIMITS**

SELECT EITHER - **WITH POTENTIAL MATCHING**
or
WITHOUT POTENTIAL MATCHING



REFEX™ sensors ltd

Guide to Chemical Resistance of REFEX

NR = Not Resistant

Chemical Environment	& Conc.	Max. Temp. °C
Acetic Acid	15	90
Acetic Acid	25	90
Acetic Acid	50	82
Acetic Acid	75	65
Acetic Acid, Glacial	100	38
Acetic Anhydride	100	38
Acetone	10	82
Acetone	100	NR
Acid Cleaner (31% Hydrochloric Acid)		88
Acrymalide	50	38
Acrylic Acid	25	38
Acrylic Latex		49
Acrylonite Latex dispersion	2	27
Activated Carbon Beds, Water Treatment		90
Agricultural Chemicals, Spray Operation		49
Air One Sided (Uninsulated) Air Temp. Immersion		90
Alamine Amines		82
Alcohol, Amyl	All	90
Alcohol, Butyl	All	49
Alcohol, Ethyl	95%	38
Alcohol, Isodecyl	All	49
Alkaline Cleaner - See sodium & potassium hydroxides		
Alkaline Solutions - See sodium, potassium, ammonium hydroxides and carbonated.		
Alkyl Benzene Sulfonic Acid	92	49
Allyl Alcohol	100	27
Allyl Chlorine	All	27
Alpa Methyl Styrene	100	49
Alpa Oleum Sulphates	100	49
Alum	All	90
Aluminium Chloride	All	90
Aluminium Chlorohydrate	All	90
Aluminium Chlorohydroxide	50	90
Aluminium Flouride	All	27
Aluminium Hydroxide	100	93
Aluminium Nitrate	10	82
Aluminium Nitrate	100	82
Aluminium Potassium Sulphate	All	90
Aluminium Sulphate	All	90
Ambitrol Ethyline Glycol		90
Amino Acids		38
Ammonia	Liquified Gas	NR
Ammonia	Gas	38
Ammonia Acetate	65	27
Ammonium Bicarbonate	10	71
Ammonium Bicarbonate	50	71
Ammonium Biflouride	100	65
Ammonium Bisulphide (Black Liquor)		82
Ammonium Bisulphide (Cooking Liquor)		65
Ammonium Bromate	43	71
Ammonium Bromide	43	71
Ammonium Carbonate	All	65
Ammonium Chloride	All	90
Ammonium Citrate	All	65
Ammonium Flouride	All	65
Ammonium Hydroxide	5	82
Ammonium Hydroxide	10	65
Ammonium Hydroxide	20	65
Ammonium Hydroxide	29	38
Ammonium Lauryl Sulphate	30	49
Ammonium Ligno Sulphonate	50	82
Ammonium Nitrate	All	90
Ammonium Persulphate	All	82
Ammonium Phosphate, dibasic	All	90
Ammonium Phosphate, monobasic	All	90
Ammonium Polysulphide	Sat'd	65
Ammonium Sulphate	All	90
Ammonium Sulphate (Bisulphide)	Sat'd	49
Ammonium Sulphite	Sat'd	65
Ammonium Thiocyanate	50	38
Ammonium Thiosulphate	60	38
Amyl Acetate	All	49

Chemical Environment	& Conc.	Max. Temp. °C
Amyl Alcohol	All	90
Amyl Alcohol, vapour		90
Amyl Chloride	100	49
Aniline	100	21
Aniline Hydrochloride	All	82
Aniline Sulphate	All	90
Anodize (15% Sulphuric)		90
Arsenic Acid	All	38
Arsenius Acid	19°Be	82
B		
Barium Acetate	All	82
Barium Bromide	All	90
Barium Carbonate	All	90
Barium Chloride	All	90
Barium Cyanide	All	65
Barium Hydroxide	All	65
Barium Sulphate	All	90
Barium Sulphide	All	82
Benzaldehyde	100	21
Benzine	100	38
Benzine, Ethyl Benzine	1/3:2/3	38
Benzine, Hydrochloric Acid (Wet)		38
Benzine Vapour		49
Benzine Sulphonic Acid	50	65
Benzoic Acid	Sat'd	90
o-benzoyl Benzoic Acid	All	90
Benzyl Alcohol	All	38
Benzyl Chloride	100	27
Benzyltrimethylammonium Chloride	60	38
Bisulphite in Scrubber	Gases	90
Black Liquor (Pulp Mill)	All	82
Black Liquor (Pulp Mill) Thick	All	90
Black Liquor Kratt	Thin	82
Black Liquor recovery, furnace gases		204
Bleach Liquor (Pulp Mill)	100	93
Bleaches		
Calcium Hypochlortate	All	82
Chlorine Dioxide Wet	Sat 'd	86
Chlorine Water	Sat 'd	99
Lithium Hypochlorite	All	82
Peroxides Dilute		90
Sodium Hypochlorite	5.25	82
	10	82
	18	82
Blood Proteins	20	38
Blood Sugar	All	90
Blow Down (Non-Condensable Gases)		90
Borax	100	90
Boric Acid	All	90
Brake Fluid HD557		49
Brass Plating Solution 3% Copper, 1% Zinc and 56% Sodium Cyanides, 3% Sodium Carbonate		82
Brine	All	90
Bromine, Dry Gas		38
Bromine, Liquid	100	NR
Bromine, Wet Gas	100	38
Brown Stock		82
Bunker C Fuel Oil	100	90
2-Butoxyethanol	100	38
2,2-Butoxyethoxyethanol	100	38
Butyl Acetate	100	27
Butyl Acetate	100	27
Butyl Alcohol	All	49
Butyl Benzoate	70	38
Butyl Benzyl Phthalate	100	90
Butyl CARBITAL diethylene glycol	100	38
Butyl CELLOSOLVE Solvent	100	38
Butylene Glycol	100	82
Butyraldehyde	100	38
Butyric Acid	25	90
Butyric Acid	50	90
Butyric Acid	100	49

Chemical Environment	& Conc.	Max. Temp. ºC
H		
n-Heptane	100	90
Herbicides		49
Hexachlorethane	100	49
Hexamethylenetetramine	40	49
Hexane	100	71
Hot Stack Gas		90
Hydraulic Fluid	100	82
Hydriodic Acid	40	65
Hydrobromic Acid	18	82
Hydrobromic Acid	25	82
Hydrobromic Acid	48	65
Hydrobromic Acid	62	38
Hydrochloric Acid	20	90
Hydrochloric Acid	37	82
Hydrochloric Acid Fumes		90
Hydrocyanic Acid	All	90
Hydrofluoric Acid	10	65
Hydrofluoric Acid	20	38
Hydrofluosilic Acid	10	82
Hydrofluosilic Acid	25	38
Hydrofluosilic Acid	35	38
Hydrogen Bromide, wet gas	100	82
Hydrogen Chloride, dry gas	100	90
Hydrogen Chloride, wet gas	100	90
Hydrogen Fluoride Vapour		82
Hydrogen Peroxide	30	65
Hydrogen Sulphide	5	90
Hydrogen Sulphide	100	90
Hydroxyacetic Acid (Glycolic Acid)	70	38
Hypophosphorous Acid	50	49
I		
Incinerator Gases	100	90
Insecticides		49
Iodine, Crystals	100	65
Iodine, Vapour	100	82
Iron Plating Solution 45 Lfe C12; 15% CaC12; 20% FeSo4; 11% (NH4)2 So4 (121)		90
Iron, Steel Cleaning Bath 4% Hcl, 23% H2So4		90
Isoamyl Alcohol	100	49
Isobutyl Alcohol	100	49
Isodecanol		49
Isononyl Alcohol	100	65
Isooctyl Adipate	100	65
Isooctyl Alcohol	100	65
Isopropyl Alcohol	All	49
Isopropyl Amine	100	49
Isopropyl Myristate	100	90
Isopropyl Palmitate	100	90
Itaconic Acid	2	49
J		
Jet Fuel	100	82
K		
Kerosene	100	82
L		
Lactic Acid	All	90
Latex		49
Lauroyl Chloride		49
Lauryl Alcohol	100	82
Lauryl Chloride	100	90
Lauryl Chloride, Crude, Acidic	100	90
Lauryl mercaptan	All	65
Lead Acetate	All	90
evulinic Acid	All	90
Linseed Oil	100	90
Lithium Bromide	Sat'd	90
Lithium Carbonate	Sat'd	82
Lithium Chloride	Sat'd	90
Lithium Hydroxide	Sat'd	82
Lithium Hypochlorate	All	82
M		
Magnesium Bisulphite	All	82
Magnesium Carbonate	All	82
Magnesium Chloride	All	121
Magnesium Fluosilicate	All	90
Magnesium Hydroxide	100	90
Magnesium Nitrate	All	90
Magnesium Sulphate	All	90
Maleic Acid	100	90
Manganese Chloride	All	90
Manganese Sulphate	All	90
Mercaptoacetic Acid	All	38
Mercuric Chloride	100	90
Mercurous Chloride	All	90
Mercury	100	90
Methyl Alcohol (Methanol)	100	38
Methyl Bromide (Gas)	10	27
Methyl Ethyl Kertone	100	21
Methyl Styrene (Alpha)	100	49
Mineral Oils	100	90
Monochlorobenzene	100	38
Morpholine	100	27
Motor Oil		90
Myristic Acid	100	90
N		
Naptha	100	90
Napthalene	100	90
Nickel Chloride	All	90
Nickle Nitrate	All	90
Nickel Sulphate	All	90
Nitric Acid	5	82
Nitric Acid	20	65
Nitric Acid	40	27
Nitric Acid Fumes		82
Nitric / Hydrofluoric Acid	8/5	60
Nitrobenzene	100	38
Non-Condensable Blow-down Gases		90
O		
Octanoic Acid	100	90
Oil, Sour Crude	100	90
Oil, Sweet Crude	100	90
Oleic Acid	All	93
Olive Oils	100	90
Oxalic Acid	All	90
Ozone		90
P		
Palmitic Acid	100	90
Pentanedioic Acid	50	40
Perchloric Acid	10	65
Perchloric Acid	30	38
Perchloroethylene	100	49
Phenol (Carbolic Acid)	5	49
Phenol	88	21
Phenol Formaldehyde Resin	All	49
Phenol Sulphonic Acid	65	27
Phosphoric Acid	85	90
Phosphoric Acid	100	90
Phosphoric Acid, Vapour and Fumes	100	90
Phosphorous Acid	70	38
Phthalic Acid	All	99
Picric Acid (Alcohol)	10	38
Pine Oil	100	49
Platinum Plating Solution		82
Polyacrylamide		38
Polyethylene Imine	12	65
Polyphosphoric Acid		99
Polyvinyl Acetate Adhesives		49
Polyvinyl Alcohol	All	49
Potassium Aluminium Sulphate	All	90
Potassium Bicarbonate	10	65
Potassium Bicarbonate	50	82
Potassium Bromide	All	49
Potassium Carbonate	10	65
Potassium Carbonate	25	65
Potassium Carbonate	50	82
Potassium Chloride	All	90
Potassium Dichromate	All	90
Potassium Ferricyanide	All	90
Potassium Ferrocyanide	All	90
Potassium Gold Cyanide	12	38
Potassium Hydroxide	10	65
Potassium Hydroxide	25	65
Potassium Hydroxide	45	82
Potassium Iodide	All	65
Potassium Nitrate	All	90
Potassium Permanganate	All	90
Potassium Persulphate	All	90
Potassium Pyrophosphate	60	65
Potassium Silicofluoride		38
Potassium Sulphate	All	90
Propionic Acid	50	82
Propionic Acid	100	38
Propylene Glycol	All	90
Pulp Paper Mill Blow Down (non condensable gases)		90
Q		
Quaternary Amine Salts		65
R		
Radiation Resistance		60
Rayon Spinning Fumes	Fumes	60
Recovery Boiler Gases		90
Red Liquor	All	65

Chemical Environment	& Conc.	Max. Temp. ºC
H		
n-Heptane	100	90
Herbicides		49
Hexachlorethane	100	49
Hexamethylenetetramine	40	49
Hexane	100	71
Hot Stack Gas		90
Hydraulic Fluid	100	82
Hydriodic Acid	40	65
Hydrobromic Acid	18	82
Hydrobromic Acid	25	82
Hydrobromic Acid	48	65
Hydrobromic Acid	62	38
Hydrochloric Acid	20	90
Hydrochloric Acid	37	82
Hydrochloric Acid Fumes		90
Hydrocyanic Acid	All	90
Hydrofluoric Acid	10	65
Hydrofluoric Acid	20	38
Hydrofluosilic Acid	10	82
Hydrofluosilic Acid	25	38
Hydrofluosilic Acid	35	38
Hydrogen Bromide, wet gas	100	82
Hydrogen Chloride, dry gas	100	90
Hydrogen Chloride, wet gas	100	90
Hydrogen Fluoride Vapour		82
Hydrogen Peroxide	30	65
Hydrogen Sulphide	5	90
Hydrogen Sulphide	100	90
Hydroxyacetic Acid (Glycolic Acid)	70	38
Hypophosphorous Acid	50	49
I		
Incinerator Gases	100	90
Insecticides		49
Iodine, Crystals	100	65
Iodine, Vapour	100	82
Iron Plating Solution 45 Lfe C12; 15% CaC12; 20% FeSo4; 11% (NH4)2 So4 (121)		90
Iron, Steel Cleaning Bath 4% Hcl, 23% H2So4		90
Isoamyl Alcohol	100	49
Isobutyl Alcohol	100	49
Isodecanol		49
Isononyl Alcohol	100	65
Isooctyl Adipate	100	65
Isooctyl Alcohol	100	65
Isopropyl Alcohol	All	49
Isopropyl Amine	100	49
Isopropyl Myristate	100	90
Isopropyl Palmitate	100	90
Itaconic Acid	2	49
J		
Jet Fuel	100	82
K		
Kerosene	100	82
L		
Lactic Acid	All	90
Latex		49
Lauroyl Chloride		49
Lauryl Alcohol	100	82
Lauryl Chloride	100	90
Lauryl Chloride, Crude, Acidic	100	90
Lauryl mercaptan	All	65
Lead Acetate	All	90
evulinic Acid	All	90
Linseed Oil	100	90
Lithium Bromide	Sat'd	90
Lithium Carbonate	Sat'd	82
Lithium Chloride	Sat'd	90
Lithium Hydroxide	Sat'd	82
Lithium Hypochlorate	All	82
M		
Magnesium Bisulphite	All	82
Magnesium Carbonate	All	82
Magnesium Chloride	All	121
Magnesium Fluosilicate	All	90
Magnesium Hydroxide	100	90
Magnesium Nitrate	All	90
Magnesium Sulphate	All	90
Maleic Acid	100	90
Manganese Chloride	All	90
Manganese Sulphate	All	90
Mercaptoacetic Acid	All	38
Mercuric Chloride	100	90
Mercurous Chloride	All	90
Mercury	100	90
Methyl Alcohol (Methanol)	100	38
Methyl Bromide (Gas)	10	27
Methyl Ethyl Kertone	100	21
Methyl Styrene (Alpha)	100	49
Mineral Oils	100	90
Monochlorobenzene	100	38
Morpholine	100	27
Motor Oil		90
Myristic Acid	100	90
N		
Naptha	100	90
Napthalene	100	90
Nickel Chloride	All	90
Nickle Nitrate	All	90
Nickel Sulphate	All	90
Nitric Acid	5	82
Nitric Acid	20	65
Nitric Acid	40	27
Nitric Acid Fumes		82
Nitric / Hydrofluoric Acid	8/5	60
Nitrobenzene	100	38
Non-Condensable Blow-down Gases		90
O		
Octanoic Acid	100	90
Oil, Sour Crude	100	90
Oil, Sweet Crude	100	90
Oleic Acid	All	93
Olive Oils	100	90
Oxalic Acid	All	90
Ozone		90
P		
Palmitic Acid	100	90
Pentanedioic Acid	50	40
Perchloric Acid	10	65
Perchloric Acid	30	38
Perchloroethylene	100	49
Phenol (Carbolic Acid)	5	49
Phenol	88	21
Phenol Formaldehyde Resin	All	49
Phenol Sulphonic Acid	65	27
Phosphoric Acid	85	90
Phosphoric Acid	100	90
Phosphoric Acid, Vapour and Fumes	100	90
Phosphorous Acid	70	38
Phthalic Acid	All	99
Picric Acid (Alcohol)	10	38
Pine Oil	100	49
Platinum Plating Solution		82
Polyacrylamide		38
Polyethylene Imine	12	65
Polyphosphoric Acid		99
Polyvinyl Acetate Adhesives		49
Polyvinyl Alcohol	All	49
Potassium Aluminium Sulphate	All	90
Potassium Bicarbonate	10	65
Potassium Bicarbonate	50	82
Potassium Bromide	All	49
Potassium Carbonate	10	65
Potassium Carbonate	25	65
Potassium Carbonate	50	82
Potassium Chloride	All	90
Potassium Dichromate	All	90
Potassium Ferricyanide	All	90
Potassium Ferrocyanide	All	90
Potassium Gold Cyanide	12	38
Potassium Hydroxide	10	65
Potassium Hydroxide	25	65
Potassium Hydroxide	45	82
Potassium Iodide	All	65
Potassium Nitrate	All	90
Potassium Permanganate	All	90
Potassium Persulphate	All	90
Potassium Pyrophosphate	60	65
Potassium Silicofluoride		38
Potassium Sulphate	All	90
Propionic Acid	50	82
Propionic Acid	100	38
Propylene Glycol	All	90
Pulp Paper Mill Blow Down (non condensable gases)		90
Q		
Quaternary Amine Salts		65
R		
Radiation Resistance		60
Rayon Spinning Fumes	Fumes	60
Recovery Boiler Gases		90
Red Liquor	All	65

Chemical Environment	& Conc.	Max. Temp. ºC
S		
Salt Brine	30	90
Sea Water		90
Selenious Acid	All	90
Silver Nitrate	All	90
Silver Plating Solution 4% Silver: 7% Potassium and 5% Sodium Cyanides: 2% potassium Carbonate		82
Sodium Acetate	All	90
Sodium Alkyl Arul Sulphonates	All	82
Sodium Aluminate	All	49
Sodium Benzoate	100	82
Sodium Bicarbonate	10	82
Sodium Bicarbonate	Sat'd	82
Sodium Bisulphate	All	90
Sodium Bisulphite	Sat'd	90
Sodium Borate	Sat'd	90
Sodium Bromate	5	65
Sodium Bromide	All	90
Sodium Carbonate	10	82
Sodium Carbonate	25	82
Sodium Carbonate	32	82
Sodium Carbonate	35	82
Sodium Chlorate	50	90
Sodium Chlorate	100	90
Sodium Chlorate	10	65
Sodium Chlorate	100	49
Sodium Chromate	50	90
Sodium Cyanide	All	90
Sodium Dichromate	100	90
Sodium Di-phosphate	100	90
Sodium Dodecylbenzene-sulphonate		71
Sodium Ferricyanide	All	90
Sodium Ferrocyanide	All	90
Sodium Fluoride	All	82
Sodium Fluoro Silicate	All	49
Sodium Hexameta Phosphate	10	38
Sodium Hydrosulphide	All	82
Sodium Hydroxide	25	82
Sodium Hydroxide	50	90
Sodium Hypochlorate	18	82
Sodium Lauryl Sulphate	All	71
Sodium Mono-phosphate	All	90
Sodium Nitrate	All	90
Sodium Oxalate	Sat'd	90
Sodium Phosphate	10	90
Sodium Phosphate Tri	All	90
Sodium Polyacrylate	25	82
Sodium Silicate	All	90
Sodium Sulphate	All	90
Sodium Sulphide	All	90
Sodium Sulphite	All	90
Sodium Tartrate	All	90
Sodium Tetraborate	Sat'd	82
Sodium Thiocyanate	57	82
Sodium Thiosulphate	All	82
Sodium Tripolyphosophate	Sat'd	90
Sodium Xylene Sulphonate	All	71
Solder Plate		65
Solvent Extract Solutions 4% Trioctylphosphine oxide (TOPO) 4% Diethyl Hexyl Phosphoric Acid (DEHPA) 92% Kerosene		82
Solvent Extraction Solutions 3% Isodecanol: 6% ALAMINE 336: 9% Kerosene		82
Sorbitol Solutions	All	82
Sour Crude Oil	100	90
Soya Oil	100	90
Stannic Chloride		90
Stannous Chloride		90
Steam		90
Stearic Acid	All	90
Styrene	100	49
Styrene Acrylic Emulsion		49
Succinonitrile, Aqueous		38
Sugar Beet, Liquor		82
Sugar, Cane, Liquor and Sweetwater	All	82
Sugar / Sucrose	All	90
Sulphamic Acid	10	90
Sulphamic Acid	25	65
Sulphamic Acid	All	90
Sulphate Process (Non-Condensable Gases)		90
Sulphite / Sulphate Liquors (Pulp Mill)		90
Sulphonated Detergents	100	82
Sulphur Chloride	Fumes	90
Sulphur Dioxide (dry or wet)		90
Sulphur Dioxide Burner, Wet Gas		90
Sulphur, Molten		90
Sulphur Trioxide		90
Sulphur, Wettable, Fungicide[4]		82
Sulphuric Acid	25	90
Sulphuric Acid	70	82
Sulphuric Acid	75	49
Sulphuric Acid	93	NR
Sulphuric Acid, Vapour		90
Sulphuric Acid: Ferrous Sulphate	10:Sat'd	90
Sulphuric Acid: Phosphoric Acid	10:20	82
Sulphurous Acid	10	49
Superphosphoric Acid	100%	90
T		
Tall Oil Reactor		90
Tall Oil Storage	All	90
Tannic Acid	All	90
Tartaric Acid	All	90
Tetrachloroethane	100	49
Tetrachloroethylene	100	49
Tetrachloropentane	100	38
Tetrachloropyridine		49
Tetrapotassium Pyrophosphate	60	65
Thermal Oxidizer (HCl Absorption)		82
Thioglycolic Acid	All	38
Tobias Acid	All	90
Toluene	100	49
Toluene Sulphonic Acid	All	90
Transformer Oils		90
Tributyl Phosphate	100	60
Trichloroacetic Acid	50	90
Trichloroethane	100	49
Trichloromonofluoromethane	100	38
Trichlorophenoxyacetic Acid		65
Tricresyl Phosphate	100	71
Triethanolamin	100	49
Triethylamine	All	49
Triethylene Glycol	100	82
Tripropylene Glycol	100	65
Trisodium Phosphate	All	90
Turpentine	100	90
Tween (Surfactant)	All	82
Tydex Flocculent	12	65
U		
Uranium Extraction		82
Uran Fertilizer		49
Urea	50	65
Urine Sugar		90
V		
Vinegar	100	90
Vinyl Toluene	100	49
W		
Waste, Organic, H20, HCL, C12 Vapours		82
Water, 50ppm Phenol		49
Water, Deionised	100	82
Water, Distilled	100	90
Water, Sea, desalination pH 7.5	17.5x Normal	82
Water, Sea, desalination pH 7.5	2.7x Normal	82
Water, Stream, Condensate	100	82
White Uquor (Pulp Mill)		82
X		
Xylene	100	49
Z		
Zinc Chloride	70	90
Zinc Cyanide		82
Zinc Elecrolyte		65
Zinc Nitrate	All	90
Zinc Sulphate	All	90

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"the First to Last"

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